

Energy Transformations

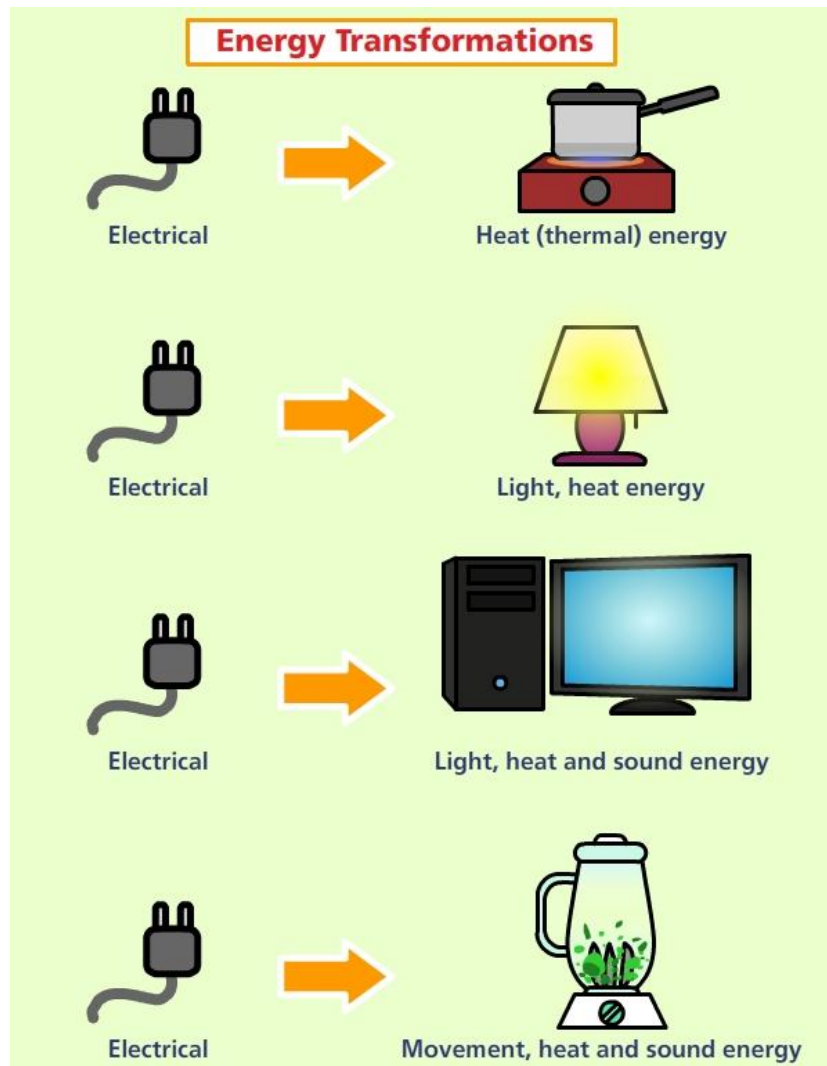
Notes

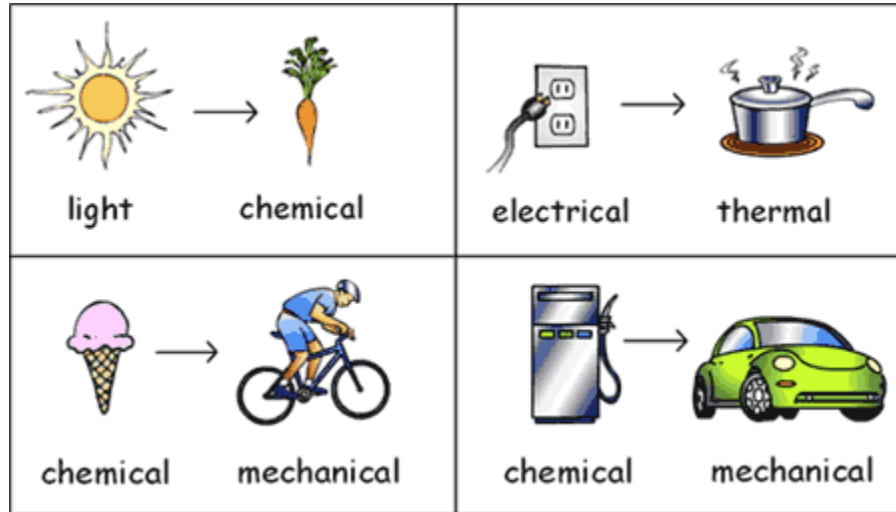
Energy

can change forms

Examples:

- electrical → thermal, light, sound
- potential → kinetic
- chemical → sound, light, thermal, kinetic





Heat

the movement of thermal energy
from one object to another

<http://www.brainpop.com/science/energy/heat/>

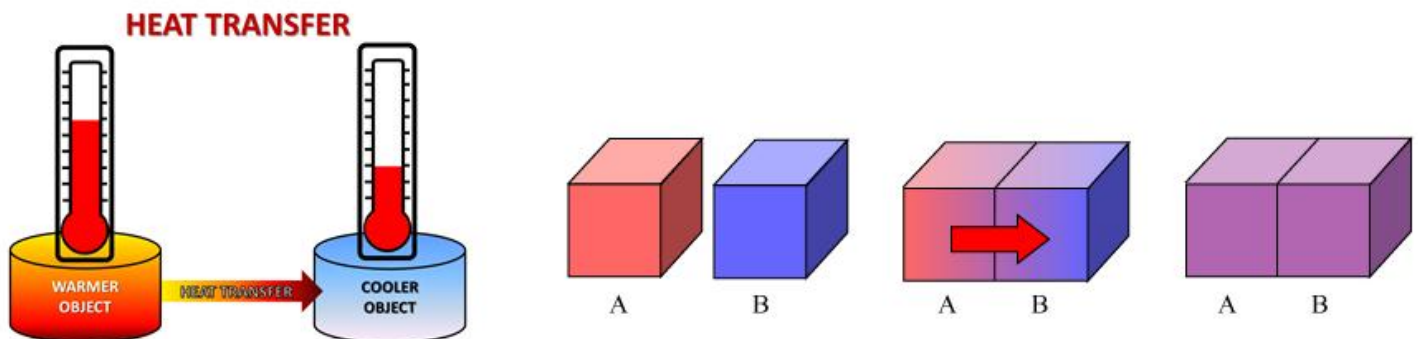
Check Your Understanding

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1. Name three kinds of energy.
2. What energy change occurs in a radio?
3. What are some ways that energy changes form?
4. What form of energy do you use most in your daily activities? How does this energy change when you use it?

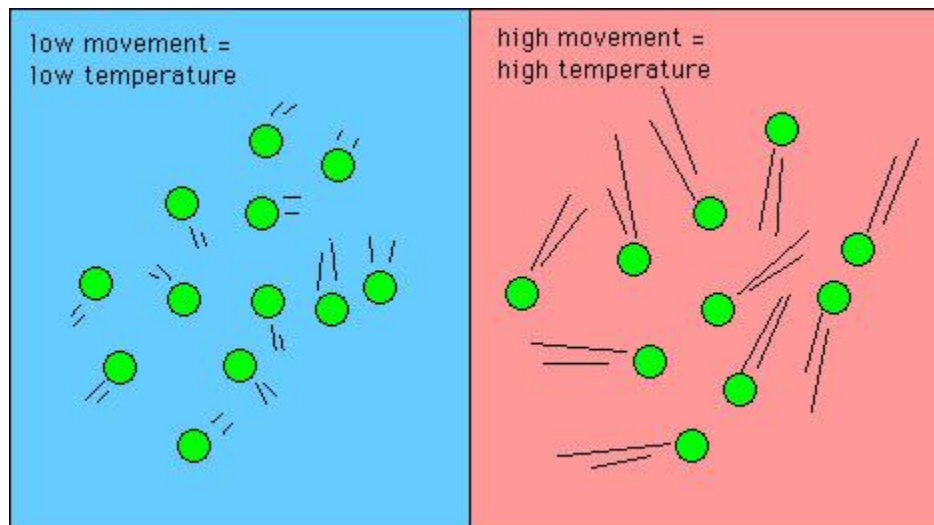
Heat

always moves from warmer matter to cooler matter



Temperature

a measure of how fast particles are moving



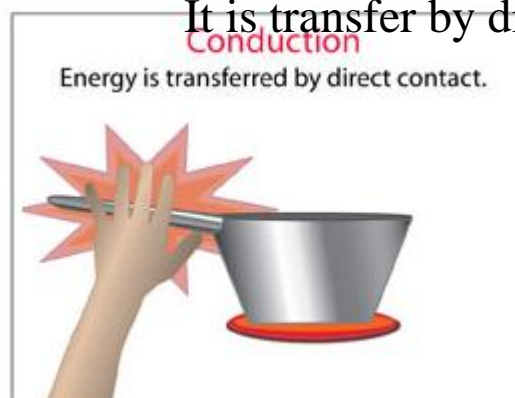
Three types of heat transfer

- conduction
- convection
- radiation

Conduction

the transfer of heat when fast-moving particles hit slower-moving particles

It is transfer by direct contact



http://www.teachersdomain.org/asset/lsps07_int_heattransfer/

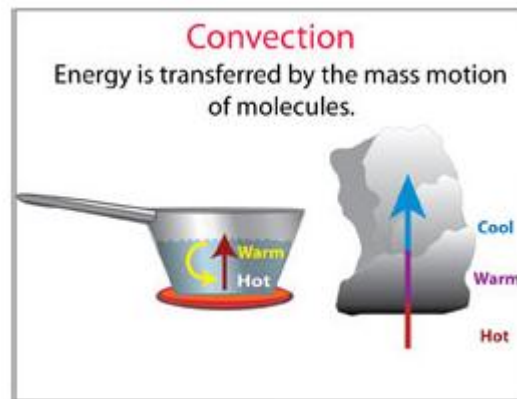
Convection

the flow of heat from one place to another by movement in a liquid or gas

The heat moves in a circular pattern

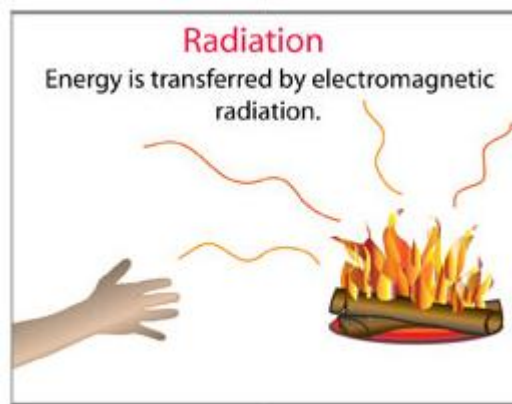
Warm water/air rises (less dense)

Cool water/air sinks (more dense)

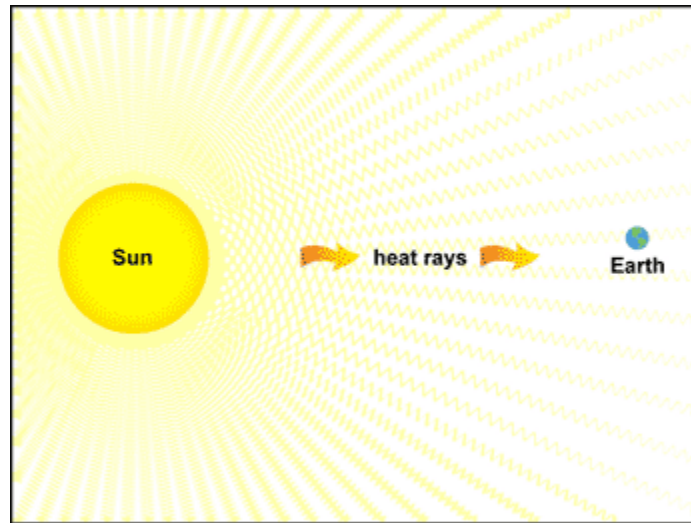


Radiation

heat transfer in waves



Energy from the sun travels to the Earth by radiation



Science Skill

Visualizing

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1. What are the parts of the system in the drawing?
2. How does thermal energy move through the water?
3. How does thermal energy move from the hot plate to the pan? Explain.

Energy

can change from one form to another

Can move from place to place

CANNOT be created or destroyed

Law of conservation of energy

law that states energy cannot be created or destroyed

The total energy always stays the same

Check Your Understanding

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1. What is heat? What is temperature?

2. What are the three ways thermal energy can move?

3. What is the law of conservation of energy?

4. If you put an object in a bowl of ice, is the thermal energy destroyed? How do you know?